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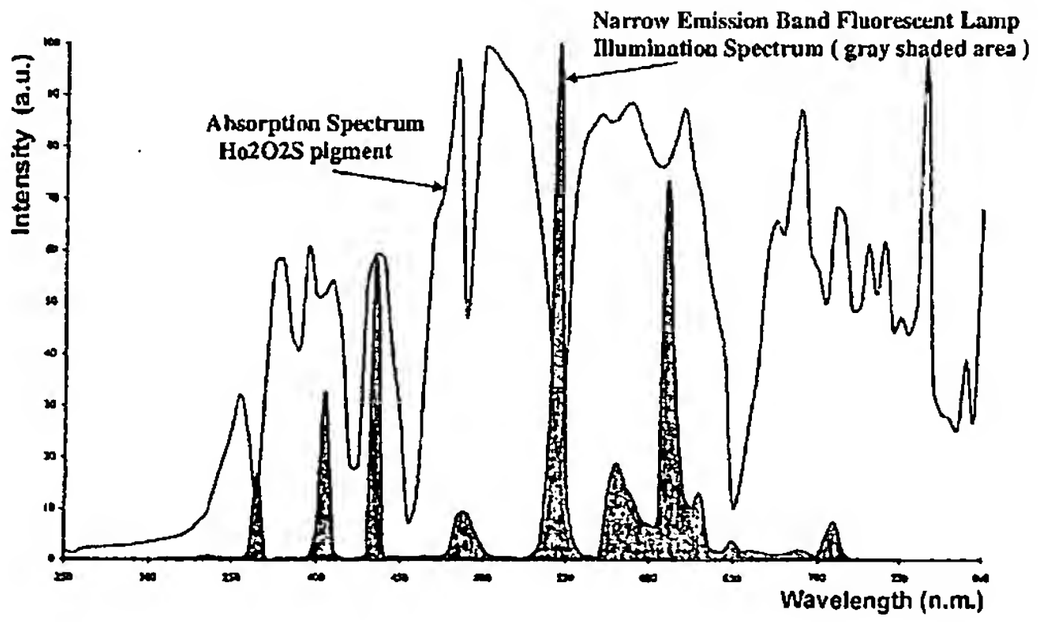
(54) Title: ILLUMINATION SOURCES AND SUBJECTS HAVING DISTINCTLY MATCHED AND MISMATCHED NARROW SPECTRAL BANDS



(57) Abstract: A light source is configured to emit narrow peaks at discrete spectral bands, especially primary color wavelengths, added to simulate the effect of a broadband light source. A subject is provided with a pigment, examples being certain rare earth lanthanides, with a strong absorption peak at a corresponding narrow spectral band. The pigment has a nominal hue under true broadband light. When illuminated by the narrow band source, the absorption peak eliminates the contribution of one of the primary colors, producing a distinct shift in hue of the pigmented subject. The change in hue cannot be anticipated from the appearance of illuminated subjects that lack the pigment, which remain normal. The narrow absorption peak is not noticeable under unmatched light sources or true broadband light sources, e.g., sunlight. The hue shift effect is useful for security authentication, informational and decorative applications.

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